

Project	Person	Date
LHC upgrade	Kai	29 Jan
LHeC	Gabriele	29 Jan
CLIC	Ian	6 Feb
New Light Source	Andy	6 Feb
Neutrino factory	Leo	13 Feb
FAIR	Larisa	13 Feb
EMMA	Maxim	20 Feb
SuperB	Duncan	20 Feb
ADSR	Kosmas	27 Feb
XFEL	Lei?	27 Feb

Summary of Projects

Kai Hock

LHC Upgrade

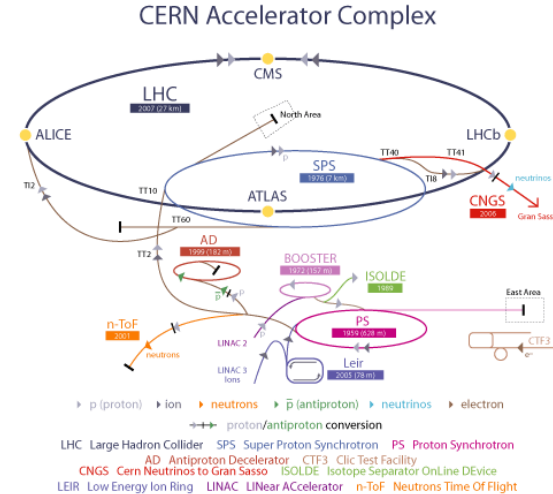
About the project

LHC is a 27 km circular accelerator in CERN that produces 7 TeV protons. The project is to upgrade it to improve the luminosity.

Improved luminosity increases the physics potential, extending the reach of electroweak physics as well as the search for new modes in supersymmetric theories. Helps in the search for the Higgs boson

Size of project

International collaboration.
Schedule 2006-2015



LHeC

About the project

Proposed e-p collider at the LHC (LHeC) - to combine the 7 TeV proton beam with a new electron beam of about 70 GeV.

High luminosity permits high precision studies of e-p scattering (Gabriele's talk)

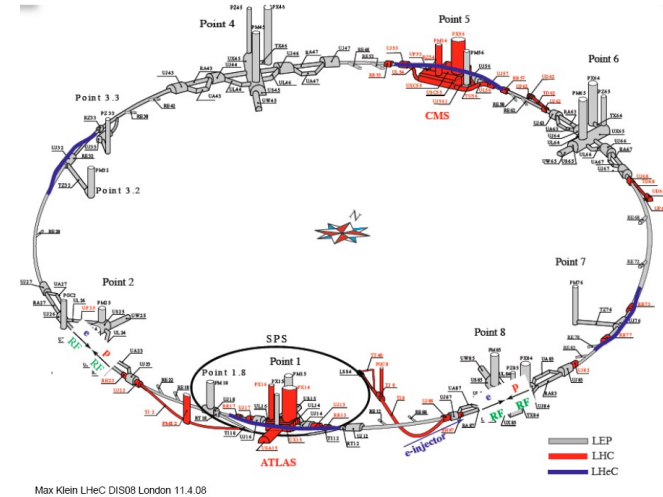
Size of project

International collaboration.

Planning stage.

Schedule ~ 10 years

Budget ~ 100M euros ?



CLIC

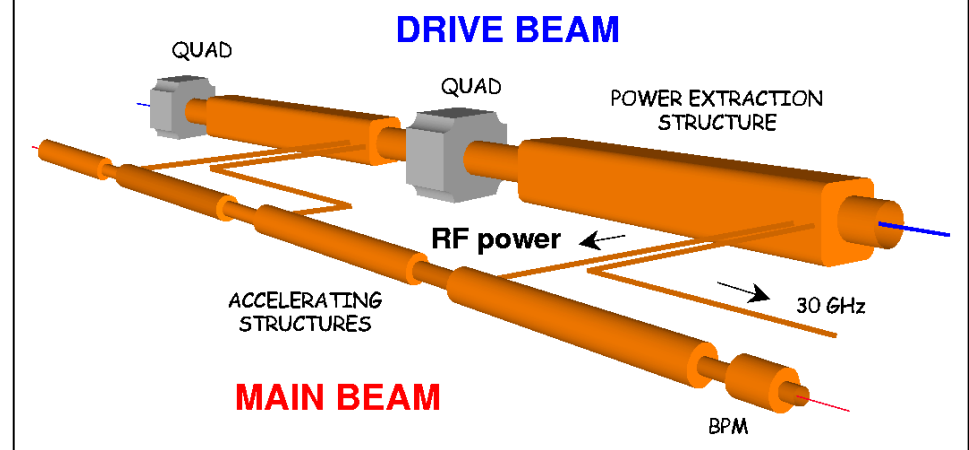
About the project

CERN-based study for a future electron-positron collider, 0.5 to 5 TeV
(Ian's talk)

Finding Higgs, origin of universe, etc.

Size the project

Schedule 2007 - 2023



New Light Source

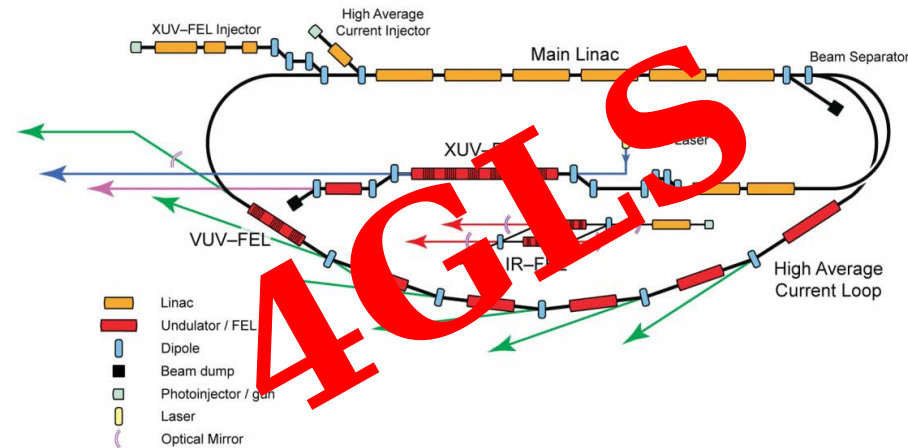
About the project

No specs yet. (Scaled down version of 4GLS?)

Studies of physical/chemical/biological processes on fs timescales are at the cutting edge. Potential to revolutionise our understanding of how chemical processes work, with enormous practical implications (Andy's talk)

Size of the project

Daresbury based collaboration. Led by ASTeC
Cost less than £150M



Neutrino Factory

About the project

To produce a very large number of neutrinos each year. These neutrinos would then travel through the Earth to two or three large underground detectors several thousand kilometres away, where at least several thousand will be captured each year.
(UK Neutrino Factory)

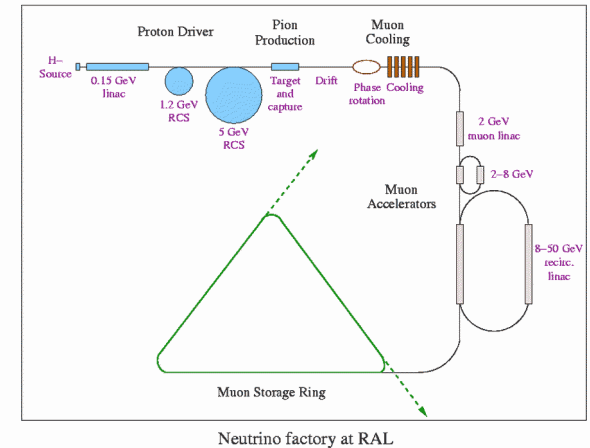
Helps to understand why the universe exists.

size of project

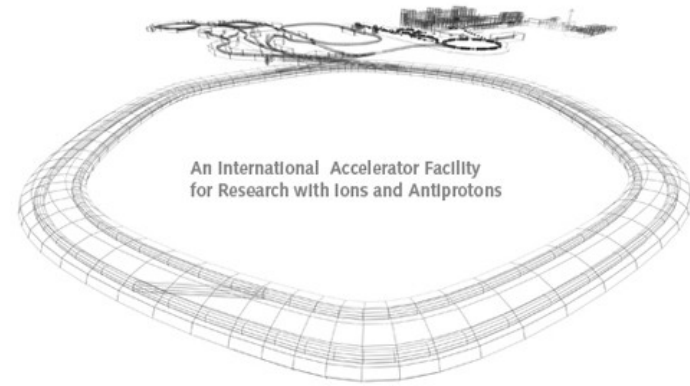
International Collaboration. RAL based ?

Costs of the UK project £7772.25k

Schedule 2007 - 2010 (UK Neutrino Factory)



FAIR



About the project

At GSI, Darmstad - a superconducting synchrotron double ring facility with a circumference of about 1,100 meters.

Produces antiprotons and ions for science experiments. To have the highest beam power and intensity.

For studying atoms, nuclei, hadrons, quarks and gluons. (FAIR GSI web page)

Size of project

European based collaboration ?

2007 start of project

2012 first experiments

2015 completion

approx. 1.2 billion € (FAIR GSI web page)

EMMA

About the project

Electron ring, fixed field, 10 - 20 MeV

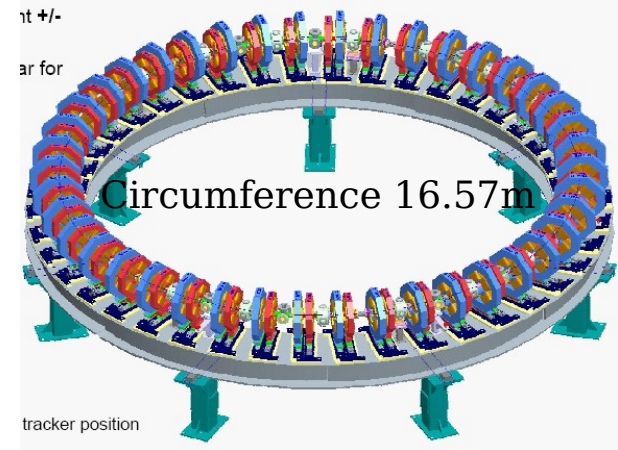
Proof of principle for fixed field magnets. Investigation of dynamics for future designs (Maxim's talk)

Size of project

Daresbury based

£5.7M

Schedule - by 2010



SuperB

About the project

Very high-luminosity asymmetric e^+e^- collider

7GeV high energy ring (HER) and the 4GeV low energy ring (SuperB CDR 2007)

New physics beyond standard model (Gerson 2007)

Size of project

International collaboration.

complete in 5 years ? (Gerson 2007)

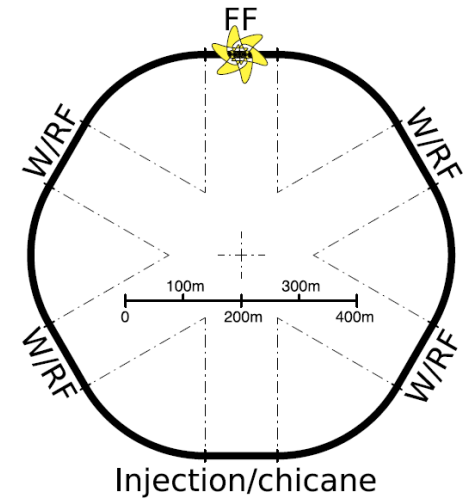


Figure 3-5. Footprint of one ring.

ADSR

About the project

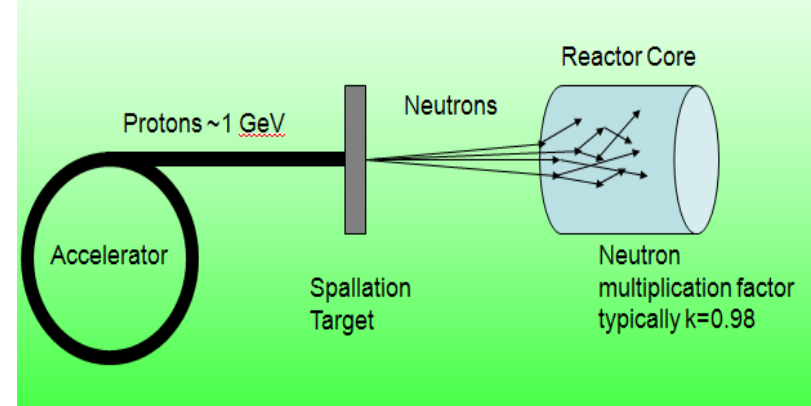
Synchrotron ---- Linac ---- Cyclotron. Proton 1 GeV. High current

“Switch ON- Switch OFF” reactor that provides a much safer ,than the currently employed, operational scheme for producing energy through nuclear fission (Kosmas’s talk)

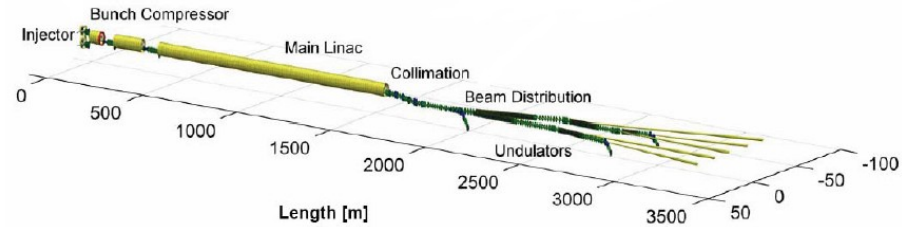
Size of project

No concrete plan for a machine yet.

Japan 2002 tech development 1250M yen/5 years (Shiroya 2003)
UK – grant proposals (Barlow 2008)



XFEL



About the project

At DESY. The purpose of the facility is to generate extremely brilliant, ultra-short pulses of x-rays. Compared to present day synchrotron radiation sources, its peak brilliance is more than 100 million times higher

This allows to use the electron beam for several FELs and spontaneous radiators and facilitates parallel operation of many experiments (Lei's talk)

Size of project

Germany based collaboration ?

Schedule 2007 - 2015

Construction cost in year 2005 prices: 986 M€ (Lei's talk)

Discussion

- Need to resolve differences of viewpoints in choice of projects
- UK support may require greater weight as it affects funding
- Same for local projects (NLS, EMMA) that have impact on Cockcroft
- Other factors? Availability of contacts, user application or fundamental physics, ...
- Problem – general lack of information on project size.